

**ABSTRACT OF THE DISCLOSURE**

7-ethynyl-2,4,9-trithiaadamantane and related methods are presented. Manufacturing 7-ethynyl-2,4,9-trithiaadamantane includes the steps of: (1) reducing alkyl 2,4,9-trithiaadamantane-7-carboxylate to produce 7-hydroxymethyl-2,4,9-trithiaadamantane; (2) oxidizing 7-hydroxymethyl-2,4,9-trithiaadamantane to produces 7-carbonyl-2,4,9-trithiaadamantane; and (3) reacting 7-carbonyl-2,4,9-trithiaadamantane with Ohira-Bestmann reagent to produces 7-ethynyl-2,4,9-trithiaadamantane. Molecular wires having 2,4,9-trithiaadamantane surface anchors are also disclosed.